

Abstract

A system and method for treatment of wastewater containing heavy metals, oil products, detergents, phenols, dyes, complexions, complexionates, etc. are described. The system includes a static mixer configured for continuous mixing the wastewater supplied thereto with desired reagents; a feeder of a magnetic powder; at least one coagulator apparatus; at least one oxidizer apparatus; at least one flocculant apparatus; and a magnetic separator configured for applying a magnetic field across an effluent of the wastewater and separating the magnetic sludge from the water. The method includes introducing powder of a ferromagnetic particulate material into the wastewater; adjusting a value of a pH of the wastewater, to form a liquid effluent of the wastewater having an adjusted value of the pH; oxidizing the wastewater having an adjusted value of the pH; flocculating the wastewater, to form flakes of magnetic sludge in water; and separating the magnetic sludge from the water.